

# INFANTRY NEWS



**THE MORTAR MASTER PLAN**, the newest in a series of Infantry School plans for charting future infantry systems, focuses on the present capabilities and benefits of mortar systems and on future mortar requirements. The plan emphasizes system description, structure and organization, threat, doctrine, training, analysis of current and future systems, and requirements and priorities for future systems, including fielding dates.

The foundation of the master plan is an analysis to determine the way current and future systems benefit AirLand Battle operations. This analysis will consider the contribution of the 120mm mortar to the mechanized infantry force to validate its benefits as the only organic indirect fire asset available to the maneuver commander. The analysis will also include the contribution of the towed 120mm mortar to the light forces and will consider the contribution of 60mm and 81mm mortars.

Conventional munitions will be studied to validate suppressive effects. The turreted mortar and "smart" munition enhancements are a part of the continuing analysis.

The Mortar Master Plan is scheduled for release in September 1992.

**THE ENHANCED MORTAR FIRE Control System (EMFCS)** is being developed to replace the M2 aiming circle in laying mortars and the aiming stakes used as a reference point for each mortar. The EMFCS will significantly increase survivability, lethality, and responsiveness through the use of four components:

- The global positioning device (GPS) will enable a mortar element to position accurately to within 15 meters. Currently, location is a function of the leader's ability to determine his location accurately by using terrain association

and a map.

- The north-finding module, which is a gyro, will replace the M-2 aiming circle, which is manually manipulated, and will determine the mounting azimuth to within one mil in two minutes.

- The collimator, which is used by the artillery, is a reference point in the immediate vicinity of the mortar system; it does not require emplacement at the procedurally correct distances of 50 and 100 meters.

- The digital compass, located at the squad leader and driver positions, helps the mortar crew when it is moving into position. Coupled with the global positioning device, it can be an excellent navigation tool.

The current mortar ballistic computer (MBC) is used to compute firing data but with the software modified to generate data that is unique to each weapon. The MBC is likely to remain at the fire direction center.

In recent concept evaluation tests, the times required to emplace the mortars and fire rounds down range were reduced by half, and with increased accuracy. The benefits of the system are expected to be more dramatic during limited visibility operations—the crews never have to dismount.

The EMFCS has been developed primarily for application to mechanized mortars, but a system for the 81mm mortar is also being developed.

**M249 MODIFICATION KITS** continue to be issued for the upgrade of machineguns that have already been fielded. A modification kit has a new buttstock that incorporates a hydro-pneumatic buffer, an improved gas system, a barrel heat shield, and a fold-away barrel change handle. The modification kit changes will also be incorporated into all the M249s produced in

the future.

In addition, steps are being taken to procure and issue a spare barrel, a barrel bag, and an extra heat shield for each M249 already in the field. These three items will also accompany the fielding of all future M249s in both their squad automatic weapon and machinegun roles.

**THE AN/PVS-6 MINI EYESAFE** laser infrared observation set (MELIOS) laser rangefinder will be fielded to infantry units beginning in mid-1993. The AN/PVS-6 is lightweight, battery-powered, and can be either handheld or tripod-mounted. It will replace the non-eyesafe AN/GVS-5 handheld laser rangefinder that infantry units now have.

The AN/PVS-6 weighs less than four pounds and can range targets out to about six miles. A solid-state electronic digital compass that is to be tested later this year will allow an operator to measure the vertical angle and azimuth to target. The operator can choose to receive a range reading or an azimuth or both.

**THE LIGHTWEIGHT CHEMICAL** biological protective garment (LCBPG) was initiated by the Infantry School as a supplement to the current battledress overgarment (BDO). The need was established for an overgarment that would provide protection from liquid and vapor hazards without causing excessive heat stress on the soldier.

The original proposed basis of issue was one suit for each light infantryman. Then the popularity of the lightweight suit grew within the Army community, and other services also wanted a lighter weight overgarment. In a joint effort with the Chemical School, the original statement of need was modified to reflect the following requirements for

the garment:

- Provide at least six hours of protection from 10 grams of liquid agent per square meter of clothing after seven days of continuous wear.
- Weigh 30 to 50 percent less than the BDO.
- Have a package volume of no more than 300 cubic inches.
- Permit donning or doffing in times equal to or less than those of the BDO.
- Provide 20 percent (preferably 30 percent) less heat stress at 90 degrees Fahrenheit than the BDO.

After several candidate suits from various countries were evaluated, the British Mark IV was identified as an initial candidate to undergo an extensive test program. Wear testing was conducted at Fort Drum, New York; Fort Benning, Georgia; and Fort Hood, Texas; and in Hawaii. Chemical agent challenge testing began at Dugway Proving Ground, Utah, and is now under way at Battelle Laboratories in Columbus, Ohio.

To date, a variety of systems have been considered, but none has met the requirements.

**THE M40 PROTECTIVE MASK** was first fielded at the U.S. Army Chemical School in December 1991, and is expected to go next to chemical depots and surety sites, followed by designated field units.

The M40 mask provides many new features that its predecessor, the M17A2, did not have. These features include a silicone rubber facepiece with improved periphery, a binocular eye lens system, side voicemitters, drink tube, clear and tinted outserts, and a filter canister with NATO thread standards.

On the M42 mask for combat vehicle crewmen, the canister is attached to the end of a hose and has an adaptor for connection to the gas particulate filter unit. The M42 has a built-in microphone for wire communication.

Both masks are issued with a butyl-coated fabric hood that protects the facepiece and the head and neck areas.

Additional benefits of the M40 protective mask are the following:

- The silicone construction provides greater comfort and fits better.
- A side-mounted, screw-on filter canister makes changing filters easier. The M40 series filter can be mounted on either the left or the right side,

whichever is easier for the soldier when firing his personal weapon.

- Larger lenses provide a greater field of vision.

Further improvements are already on the drawing board: quick-doff hood/second skin; laser/ballistic protection outserts; canister interoperability; and a communication system that will facilitate the installation of a microphone in any mask.

The M40 and M42 protective masks will be issued on a one-for-one exchange for the M17 and M25 series.

**THE NAVSTAR GLOBAL POSITIONING System (GPS)** is designed to give worldwide terrain location and navigation information to users of all services. The U.S. Army Signal School is proponent for all Army GPS user equipment, but infantrymen are among the largest users.

The NAVSTAR GPS program consists of three major segments: the control segment, the space segment, and the constellation segment.

The control segment tracks satellites with a master station to determine and maintain accuracy. An upload station

## BRADLEY CORNER

**THE BRADLEY FIGHTING** vehicle and its weapon systems thoroughly proved its combat capability during Operation DESERT STORM, and its performance was beyond our greatest expectations.

Eight years ago when the Bradley was fielded, we at the Infantry School began the *crawl, walk, run* technique of developing our soldiers' knowledge of the system and their skill in employing it. Initially, we focused on individual and crew skills. Today, we are in the *run* stage, and the primary focus is on platoon gunnery, Bradley Table (BT) XII. This approach supports the Bradley's two most important missions: to provide mobile, protected transport to get infantrymen to the critical point on the battlefield, and

to provide fires to support the infantrymen when they fight dismounted.

BT XII measures the ability of a platoon's mounted crews and dismounted infantry to execute a tactical operation while achieving specified gunnery standards. This table is the culminating event in our gunnery training strategy, and all our efforts should be focused on it. It is the combination of the dismounted infantry and the supporting vehicle crew that makes a Bradley platoon so deadly. The commander must instill in all his leaders the idea that platoon qualification is the ultimate training goal, and he must tailor the training sources with platoon qualification in mind.

Although Field Manual 23-1 estab-

lishes the guidelines and requirements of BT XII, the commander has considerable influence and flexibility in conducting the event. On the basis of his unit's METL (mission essential task list) and his command guidance, he and the S-3 determine which ARTEP 7-8 MTP (mission training plan) operation will be evaluated. A scenario is developed that encompasses both maneuver and gunnery tasks based on the resources available and the tasks to be trained. The S-3 develops an operations order, the exercise is initiated, and the platoon is evaluated on the way its soldiers fight as a cohesive unit.

For further information, call CPT Stone, Directorate of Training and Doctrine, DSN 835-7210/1418, or commercial (404) 545-7210/1418.

relays data to the satellite constellation and four monitoring stations strategically placed around the world.

The space segment consists of 24 satellites that broadcast position and timing information to users. The satellite constellation continuously sends timing signals to earth. The GPS receiver takes the timing signal from three or four satellites and calculates the coordinates, direction of travel, and elevation.

The satellite constellation is scheduled to reach full operational capability early in 1993. Sixteen satellites are now in orbit and operational. This means there are some gaps in coverage every few hours as one satellite falls below the horizon before another comes into view. These daily times are published monthly and made available by the Army Space Command. About 16 hours of three dimensional coverage are available around the Earth, during which the GPS receives signals from four satellites. This system provides the most accurate navigation information possible.

The Army's user equipment program consists of devices that receive and process information from up to four satellites and then obtain accurate position and velocity measurements. The most common user equipment items in infantry units are the following:

**The TRIMPACK Small Lightweight GPS Receiver (SLGR).** This is the set most commonly found in ground force operations. More than 9,000 of these are now in the inventory. These receivers weigh about four pounds each and are accurate to within 75 meters under normal operations. The SLGR can be mounted in a vehicle or can be hand-carried by a soldier. This receiver comes with an installation kit that consists of an external antenna mounting bracket and a power cable. The power cable comes with two open-end connectors that allow it to be hooked into any vehicle electrical system with between 6 and 30 volts.

**The Magellan "GPS NAV 1000M" SLGR.** This receiver weighs about three pounds and is accurate to within 75 meters. These receivers are usually hand carried, because an external power

supply is required for vehicle installation. More than 1,000 are in the inventory.

Other SLGR versions are used by Field Artillery, Special Forces, Air Defense, and Aviation elements.

During Operation DESERT STORM, more than 3,000 GPS receivers were in the hands of the coalition ground forces by the start of the ground war. In the desert, where key terrain features are rare, GPS receivers kept units oriented on their objectives. The increased accuracy of position location information reduced the time required for forces to maneuver from point to point. As way points, or position coordinates, were loaded into a GPS receiver, the set would guide the operator to his next point.

This experience clearly demonstrated the ease of finding points during periods of limited visibility, guiding units to a feasible lane through enemy minefields, and maneuvering through slow-go areas. In addition, the receivers improved fire control systems by providing an accurate base of fire.

The necessary technology is available and being tested to put an electronic digital compass, or a direction-seeking gyroscope, in line with a GPS receiver to give an operator a vehicle heading reference system.

Computer circuit boards are now available to add GPS capability to maneuver control system computers on the battlefield. Circuit boards under this same concept can be embedded in the single channel ground and airborne radio system (SINCGARS).

The GPS receivers are not meant to replace the individual soldier's map, compass, and land navigation skills. He must always excel in his ability to navigate on the battlefield, no matter what technology may be available.

**THE RANGERS' 50th ANNIVERSARY** celebration is scheduled for 17-19 June 1992 at Fort Benning. The anniversary will commemorate the activation of the 1st Ranger Battalion in June 1942 at Carrickfergus, North Ireland, under the command of Colonel

William O. Darby.

The three-day celebration will include the dedication of the new Ranger Hall of Fame and of a new Ranger wing at the National Infantry Museum, along with ground-breaking ceremonies for the Ranger Memorial on Ranger Field adjacent to Infantry Hall. A parade with Ranger veterans of all wars will be led by the surviving members of Darby's 1st Ranger Battalion.

**THE BRANCH AUTOMATION** Officer Course trains officers, noncommissioned officers, and civilians in skills that will enable them to apply automation to Army problems and branch-specific needs. The ten-week, three-day course is offered by the Computer Science School at the U.S. Army Signal Center, Fort Gordon, Georgia.

The course is open to commissioned officers, noncommissioned officers in the rank of platoon sergeant and above, and civilians in the grade of GS-7 and above who need a knowledge of automation technology.

Requests for attendance should be submitted through the Army Training Requirements and Resource System (ATRRS) and civilian personnel offices. For information on ATRRS representatives, call the ATRRS help desk at DSN 225-2353/2060. Officers may also call their branch management divisions to request the course as part of temporary duty enroute moves.

**THE UNITED STATES ARMY** Officer Candidate Alumni Association, Inc., has initiated a campaign to solicit voluntary donations to a special fund dedicated to the maintenance of Wigle Hall, the OCS Hall of Fame, at Fort Benning. Reduced budgets have left the 3d Battalion, 11th Infantry, the OCS training battalion, without enough funds to improve or properly maintain the building.

The OCS Hall of Fame recognizes those graduates of OCS at Fort Benning and The Ground General School, Fort Riley, who have distinguished them-

selves by attaining the rank of colonel, by earning the Medal of Honor, or by achieving success in state or Federal service.

Anyone who wants to participate in this voluntary effort may make a check payable to USAOCAA, mark it "Wigle Hall Fund," and send it to Secretary TUSAOCAA, Inc., P.O. Box 2192, Fort Benning, GA 31905-2192.

Regular membership in the association is open to graduates of any Army OCS program. Associate membership is open to graduates of OCS programs of other services and other persons who support OCS programs. Annual membership dues are \$10 for either regular or associate memberships. Lifetime dues are \$100. Additional information is available from the secretary at the address given above.

**THE DISTRIBUTED TRAINING Program (DTP)** is intended to modernize institutional training and maintain the Army's technical edge into the next century. By implementing advanced training technologies (computer-based instruction, video tape, and video tele-training), and by distributing lessons to the field, the program will promote training effectiveness and improve student learning. With DTP, individuals can pursue pre-resident, self-development, leader development, and sustainment training at their respective home stations.

Several proponent school courses have been selected as pilots for recon-

figuration and distribution. The courses to be tested using the pre-resident concept include 12 basic noncommissioned officer courses (BNCOCs), four advanced noncommissioned officer courses (ANCOCs), and eight officer advanced courses (OACs). Initially, the pilot courses will consist of resident lessons reconfigured for distribution using printed instructional materials. Later, they will include advanced training technologies to modernize, improve, and enhance resident instruction and distribute courseware to the field.

This program will ensure that all students arrive for resident instruction with a common base of knowledge. This will reduce the frustration and boredom associated with repeating material already mastered by some yet new to others.

DTP is similar to the Army Correspondence Course Program (ACCP) except that the lessons contain material extracted from the resident curricula. Individuals who are already familiar with the distributed subject matter may choose only to review the training materials and take a test to certify their knowledge of it. Students who are less familiar with the course material are advised to follow the study plan and learn the material at their own pace.

When these students arrive for the resident course of instruction, they will have a higher average knowledge of course material. They can then proceed at a rate of instruction that stimulates, motivates, and challenges all the students in the class. DTP will also enable

soldiers to perform their duties more effectively in their units.

The Infantry School will test DTP pilot courses for both ANCOC and IOAC. The pilot test for ANCOC begins with Class 1-93, which is scheduled to report for the course 7 January 1993. The students scheduled to attend this class are to have completed 59 hours of Sergeants Major Academy common core subjects and 22 hours of Infantry branch specific subjects before they arrive at Fort Benning.

The School's pilot course for IOAC will commence with Class 3-93, which is to report on 22 March 1993. Students scheduled to attend these courses will receive a total of about 80 hours of branch specific curriculum materials and will be responsible for knowing the subject matter in these lessons before they arrive at Fort Benning.

The Army Training Support Center at Fort Eustis, Virginia, will mail the material to students 26 weeks before the start of resident instruction to ensure enough time for receipt, completion, return, and scoring.

The distribution of IOAC material will not shorten the resident course. The course will still be 20 weeks long and will require student permanent changes of station.

Further information is available from the Army Distributed Training Office, ATSC, Fort Eustis, VA 23604; DSN 927-2043 or commercial (804) 878-2043.

